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Brooding and Rearing Pullets for Profitable Layers

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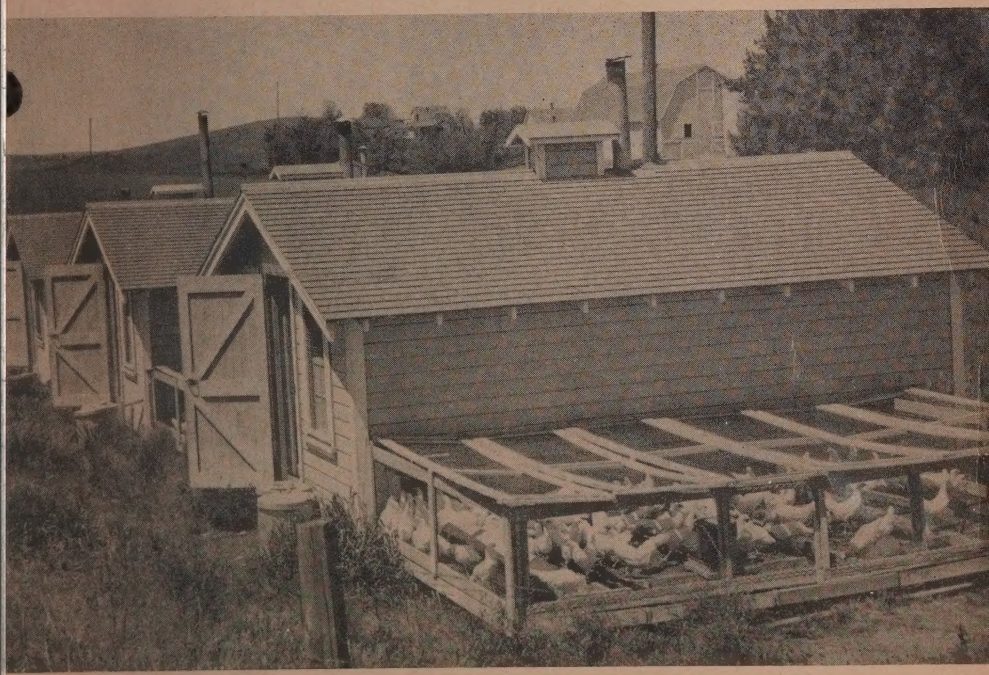
by

C. E. Lampman, C. F. Petersen, Reid Merrill



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On the Cover

The brooder houses shown are 14 x 18 feet. Each house accommodates 500 day-old chicks or about 300 6-weeks-old pullets. Side walls are 6 feet high. Two small windows are located in the rear wall for cross ventilation in hot weather. These houses remain in the same location and are equipped with wire-bottom yards to keep the chicks off contaminated ground. The yards are located on the east side to protect the chicks from cold west winds. The chicks have sunshine during the forenoon and shade in the afternoon. The floor of the yard is built in sections using welded hardware wire on 1 x 4 or 1 x 6 material used edgewise.

If houses are to be moved to clean ground each season, build them smaller for convenience in moving. If larger houses with several pens are to be built, consider facing them east so the yards in front may be located on the east side. Build such houses at least 20 feet deep with insulated walls and ceiling and a concrete floor.

Only Healthy Pullets Pay Profits

Keep your flock healthy and profitable by practicing good sanitation and disease preventive measures. Young chicks and growing pullets are highly susceptible to numerous diseases and parasites. When an outbreak occurs, early diagnosis and immediate treatment are important. The major points for a reasonable sanitation program are:

1. Thoroughly clean and disinfect your brooder house and equipment before your chicks arrive.
2. Buy well-bred, pullorum-free chicks from your local hatcheryman. This also reduces the hazard of introducing respiratory diseases.
3. Raise young chicks entirely separate from your old stock.
4. Do not overcrowd; chicks require more space as they grow older.
5. Use a wire-bottom sunyard if the house is permanently located — small mesh wire (5/8- or 3/4-inch mesh) for young chicks; 1- x 1- or 1- x 2-inch mesh welded wire of 14-gauge for older pullets kept continuously in confinement.
6. Use dry litter and dry ground to help prevent coccidiosis. Waste-proof watering equipment will help this program.
7. Rotate your pullet ranges every year.
8. Use wire-sided range shelters or be sure there is adequate cross ventilation in buildings with solid walls.
9. Move all range equipment every week or 2 weeks.

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Good Brooding Practices Are Important

Although improved equipment and better rations make it easier to raise better chicks, good management is still the all-important factor in brooding and rearing pullets. Select the brooder that will provide sufficient ,dependable heat for the kind of house and for the weather during which it is to be used. Keep it in good repair and ready to use before the brooding season begins. Operate the brooder 1 or 2 days to check performance before the chicks arrive.

Start the Chicks Right — Limit the number to not more than 500 chicks to one brooder for best results. Provide at least one-half square foot of floor space per chick up to 6 weeks.

Figure 1. This oil brooder is being used in a single-boarded house for cold weather brooding because it provides additional room heat to keep the chicks comfortable. It is important to thoroughly inspect oil-line, connections, and thermostat before starting the brooder and to frequently check the thermostat regulation and oil flow while the brooder is in operation. Peat moss is used as litter next to the base of the stove to reduce fire hazard. A mixture of peat moss and shavings is used over the rest of the floor. The corrugated paper corral was used to confine the chicks near the hover at the start. The chicks are now properly hover broken and the corral can be removed. The roosting frame which now stands on edge against the rear wall will be put down when the chicks are 3 to 4 weeks old.

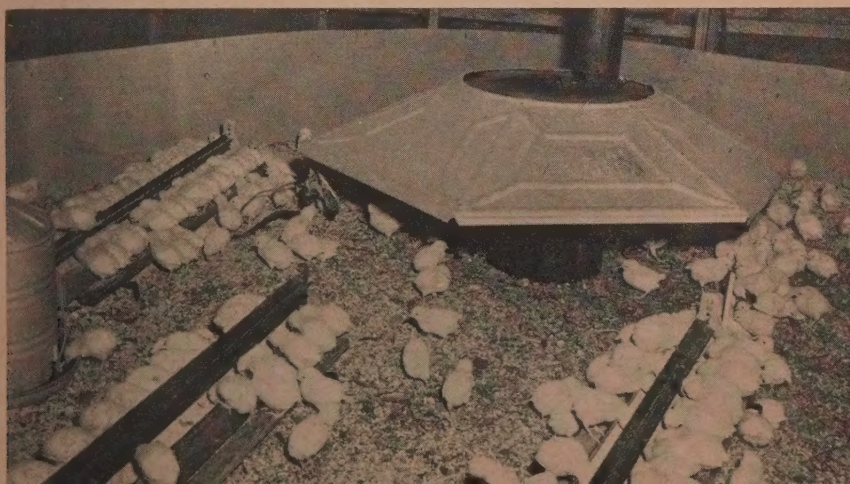


Figure 2. This gas brooder is being used with excellent results in an insulated brooder house for early-season brooding. The automatic waterer near the wall is also desirable equipment. It eliminates routine chores and wet litter. The fountain in front was used temporarily until chicks learned to drink from the automatic waterer. Gas brooders are more generally used in sections where rates are competitive. Less fire hazard is involved and less chore routine is required with the gas as compared to oil brooders, but they do not produce as much room heat.

Use a thermometer to check the brooder temperature but let the chicks be the guide as to their comfort. In general, follow manufacturer's instructions; for most hover- or canopy-type brooders, a temperature of 90° to 95° under the edge of the hover and 2 inches above the litter is recommended for day-old chicks.

Use a corral to enclose the chicks near the brooder at the start to teach them the source of heat. A solid corral such a regular corrugated paper brooder fence also stops cold floor drafts. Giving the chicks close attention the first 2 nights to be sure they settle right will mean less trouble later. Enlarge the corral every day and remove it after the first week. "Round" all the brooder house corners with 1-inch mesh wire.

Keep the room temperature cool enough so that the chicks will go to the brooder to warm up.

Use 3 to 4 inches of fine absorbent litter such as peat moss, sawdust, shavings, cut straw, or a combination of these materials. Stir the litter frequently and remove any that becomes wet. Remember, **dry litter is a necessity in preventing an outbreak of coccidiosis.**

Get the chicks outside at an early age if you have clean ground or sanitary sunyards. Place a covered feed trough just outside the chick door and allow them to run out at will. This is desirable even when the weather is too cold for them to stay out. The chicks will be more contented and less likely to start picking.

Encourage chicks to roost early. Use roosting frames sloped from the floor in front to about 2 feet high in the rear. Cover the frames with 1-inch wire netting or 1- x 2-inch welded wire under the 2-inch roosts to keep the chicks from under the roosts.

Pullets require more space after they are 6 weeks old. For pullets reared in confinement, allow 1 square foot per pullet from 6 to 10 weeks and 2 square feet from 10 weeks until they are ready for the laying house.

Prevent Cannibalism

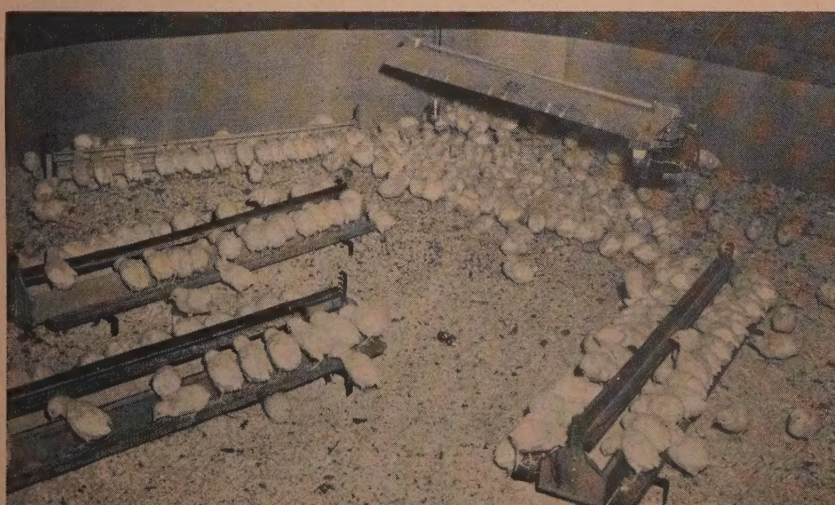
Cannibalism is often a serious problem in confined brooding and rearing. Picking usually starts accidentally during the early growth of the wing and tail feathers when they are soft and contain blood. This often attracts the attention of the chicks, especially in bright light. After the first chick is picked, the trouble spreads rapidly if not checked. Cannibalism is more likely to occur when chicks are overcrowded, when the brooder house is overheated, and when the chicks are kept continuously inside.

To prevent or reduce this trouble: (1) maintain cool brooder-room temperature; (2) encourage chicks to go outside by feeding in outside feeders; (3) feed regularly; (4) provide roosts at an early age; (5) remove cockerels at an early age; (6) feed green feed or good quality alfalfa hay in sunyards; (7) treat picked birds **at once** with a "no-pick" preparation; (8) serious outbreaks are stopped most effectively by debeaking. A regular debeaker is used for this purpose to burn back the upper beak. This may be safely done at 5 weeks of age.

Feeding Practices

Early-hatched chicks brooded in confinement are fed exclusively "from the feed bag." High quality protein supplements, one of which should be fish meal, are necessary to promote early growth. Vitamins A, D, B_{12}, and riboflavin need to be supplied to adequately fortify the starter mash. Calcium, phosphorus, and manganese are

Figure 3. The infra-red electric brooder is a new development. Here it is being used with satisfactory results in an insulated house during moderate weather. In general, it is comparable to the infra-red heat lamps. Only a limited area under the unit or lamp is heated. Neither type gives off an appreciable amount of room heat. They are not satisfactory in single-boarded houses during cold weather. Adequate ventilation may also be a problem during cold weather unless supplementary room heat is provided. If the element should burn out in the tube-type, the brooder is immediately cold. In the multiple lamp unit, if one bulb burns out, there is still heat from the other lamps. One 250-watt lamp is required for each 100 chicks. The litter stays drier than with the hover-type electric brooder.



minerals which need to be included in exact amounts. The starter mash also must be limited in fiber. It takes this kind of starter mash to provide all the requirements needed for rapid growth, fast feathering, strong bones, well-fleshed bodies, and good health.

Do not mix your own starter mash unless you are a specialized operator, consistently able to obtain the necessary ingredients and unless you understand how to incorporate the various concentrates. There are numerous formulas you can use. Those listed are examples of well fortified rations.

Have the feed and water ready for the chicks when they are put

SUGGESTED CHICK STARTER AND GROWING MASHES

Ingredient	Chick Starter 1000 lb. Mix	Pullet Grower 1000 lb. Mix
Ground corn	300 lb.	200 lb.
Ground oats	100	150
Ground wheat	100	100
Ground barley	75	100
Wheat bran or millrun	120	140
Dehydrated alfalfa meal	50	50
Fish meal (70% protein)	50	25
Meat meal (55% protein	75	50
Soybean oil meal (44% protein)	100	125
Oyster shell flour or limestone	20	30
Steamed bone meal or dicalcium phosphate	—	20
Iodized salt	5	10
Riboflavin supplement*	+	+
Feeding oil (300D-1500A) (or equivalent)	3	2.5
Manganese sulfate	0.25	0.25
Antibiotic feed supplement*	+	+

*According to potency and manufacturer's recommendations.

under the brooder. Feed a starter mash or "crumbles" during the first 8 weeks. Crumbles are more readily eaten during the first few days and, therefore, usually give the chicks a more uniform start.

Provide at least 1 inch of feeder space per chick at the start (one 4-foot feeder per 100 chicks) — increase the space as they grow older until the pullets have approximately 16 feet of mash feeder space per 100 8-weeks-old birds.

Start feeding whole wheat when they are about 4 weeks of age; feed a small amount on the mash as an evening feed and gradually increase.

Start feeding whole oats in separate feeders when the pullets are 5 or 6 weeks of age. Whole oats of good quality furnish a high quality cereal protein which promotes growth and good feather quality. Oats also furnish a desirable type of fiber as the birds grow older and have value in reducing cannibalistic tendencies.

Use a developer mash from 8 weeks of age until the pullets start laying. Change to a laying mash when they are laying at the rate of about 30 percent.

Mash and whole grains can be given free-choice in separate hoppers after pullets are 10 or 12 weeks old.

Grit and oyster shell should also be available in separate feeders. Let cost and availability determine the grains you use. It is a good practice, however, to accustom the pullets to the grains that they will later be given in the laying house. The proportions can be gradually changed. For example, barley can be increased if desired as the birds grow older.

Range Management

Pullets require a minimum of routine care while they are on range, providing they are free from disease, have comfortable quarters, adequate shade, and sufficient feeding space. The range should be as far removed from the laying flock as possible and rotated from year to year. The range shelter illustrated here is inexpensive for housing pullets while they are on range. Cover the floor with 1- x 2-inch welded wire to prevent contact with droppings. Move all range equipment frequently to utilize better the entire range and to prevent the accumulation of droppings in concentrated areas.

An orderly growth is desired so the pullets mature with good bone and well-developed bodies. Move them into the laying house when the earliest developing pullets start to lay.

Conserve feed with covered outside feeders — Rain causes feed loss due to spoilage, and sunshine reduces its palatability and destroys some of the vitamins and other nutrients. Save feed and feed values by protecting the feed from rain and sun with covers over outside feeders.

Rearing Pullets In Confinement

Pullets raised in confinement require: (1) more floor space — 2 square feet per bird; (2) cross ventilation for cool, airy houses; (3) well fortified rations; (4) sufficient feeding space well distributed; (5) sanitary conditions inside the house. Use level roosting racks with sufficient area for waste-proof watering equipment and some of the feeders.

Figure 4. This inexpensive range shelter was designed by an Idaho poultryman. The size can vary but is usually 10 x 10 or 10 x 12 feet. Height can be varied as desired. A 3-foot stud for side walls is commonly used. The aluminum roof makes the house cool and light in weight. The center floor space gives head room for the attendant and space for a mash feeder. The range shelter provides shade for the pullets during the day and a safe place at night.

Control of Coccidiosis

Several species of coccidia (microscopic animal parasites) produce severe damage to the intestinal tract. The ceca (blind pouches near the lower end of the intestines) and the upper and middle portions of the intestines are the regions involved. The complete life cycle of these parasites involve one stage in the intestinal tract of the bird and another stage is in wet litter and ground.

Cecal coccidiosis affects chicks during the brooding and early growing period. Symptoms are loss of appetite, bloody droppings, and droopy birds. Bloody material is found in the blind pouches upon postmortem examination.

Intestinal coccidiosis usually affects pullets later in the growing period and after they are in the laying house. Symptoms include loss of appetite and gradual loss of weight. Upon autopsy, the intestine is found to be enlarged, thickened, and inflamed with hemorrhagic (reddish-colored) areas present. Severely affected birds quit laying and become culls.

Early diagnosis is important. Several drugs, available under commercial names, are used for treatment; the list includes sulfamethazine, sulfaquinoxaline, nitrophenide and nitrofurazone. **These drugs must be used exactly according to the manufacturer's directions.** Excessive dosages are toxic. Do not use a combination of drugs. Keep one of these products on hand for immediate treatment should an outbreak occur. Affected birds usually drink more readily than they will eat. A quick treatment may be given using one of the drugs, such as sulfamethazine, in the form that can be used in the drinking water. Some of these drugs are also available for use at preventive levels in the mash.

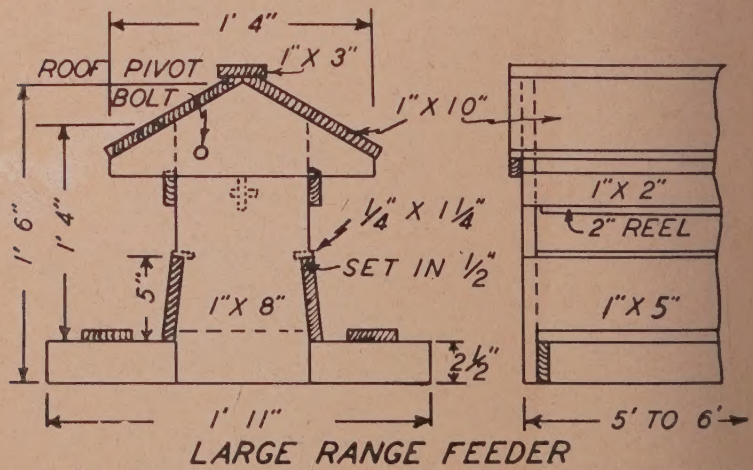


Figure 5. Covered feeders prevent waste and deterioration from rain or sunshine. Feed capacity may be increased by making the feeder wider.

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